Amendments to the Claims

Please amend Claims 1, 22 and 44. The Claim Listing below will replace all prior versions of the claims in the application:

Claim Listing

1. (Currently amended) A flat panel luminaire apparatus comprising:

a light source;

a[[n]] thermal insulating sleeve surrounding said light source, the sleeve being transparent and allowing light from the light source to pass from an inner surface of the sleeve through an outer surface of the sleeve; and

a planar waveguide having an edge in contact with the outer surface of said insulating sleeve and receiving light therefrom, the planar waveguide emitting the received light through a planar surface.

2. (Original) The apparatus according to claim 1 wherein the planar waveguide and insulating sleeve with the light source form a self-contained unit that is capable of removable insertion into a display structure.

3. (Previously presented) The apparatus according to claim 1 further comprising a reflector surrounding the outside of a substantial portion of said insulating sleeve and directing light into said edge of the planar waveguide.

4. (Original) The apparatus according to claim 3 further comprising an adhesive connector for coupling said reflector to the planar waveguide.

5. (Original) The apparatus according to claim 3 further comprising a friction connector for coupling said reflector to the planar waveguide.

6. (Original) The apparatus according to claim 4 wherein the adhesive connector is any one or combination of metalized tape, vinyl tape, and polyester tape.

7. (Original) The apparatus according to claim 6 wherein the metalized tape is segmented into two or more sections along an edge of the planar waveguide to prevent electrical current flow.

8. (Original) The apparatus according to claim 4 wherein the reflector is a thin polymer film and the adhesive connector is adhesive tape, the thin polymer film and adhesive tape holding the insulating sleeve in contact with the edge of the planar waveguide for delivery of light thereto.

9. (Original) The apparatus according to claim 1 further comprising a back panel for the planar waveguide that reflects light toward the light emitting planar surface of said planar waveguide and limits pass-through light emissions.

10. (Original) The apparatus according to claim 9 wherein the back panel is any one or a combination of a polystyrene sheet, a foamed Poly-Vinyl Chloride (PVC) sheet, a Polyethylene Terephthalate (PET) sheet, and a thin polymer film specular surface reflector sheet.

11. (Original) The apparatus according to claim 1 wherein the insulating sleeve is a clear fluoropolymer tube.

12. (Original) The apparatus according to claim 1 wherein the insulating sleeve has an index of refraction equal to or less than the index of refraction of the planar waveguide such that increased amounts of light from the insulating sleeve are received by the planar waveguide.

13. (Previously presented) The apparatus according to claim 1 wherein the planar waveguide is any one of an acrylic plate and scattered acrylic plate.

14. (Original) The apparatus according to claim 13 wherein the planar waveguide has a matrix of ink dots whose diameters, densities of ink, or both increase as a function of distance from the edge of the planar waveguide such that the matrix enables an even distribution of light to be emitted from the planar surface of the planar waveguide.

15. (Original) The apparatus according to claim 13 wherein planar waveguide uses varying amounts of internal discrete light scattering elements to disperse the received light to evenly emit light from the planar surface of the planar waveguide.

16. (Original) The apparatus according to claim 1 wherein the insulating sleeve removably holds the light source.

17. (Original) The apparatus according to claim 1 wherein the light source is a cold cathode fluorescent lamp.

18. (Original) The apparatus according to claim 1 wherein the light source is derived from a chemiluminescent reaction.

19. (Previously presented) The apparatus according to claim 1 wherein the edge of the planar waveguide is formed of grooves that cause the angle of at least some of the received light to be about the critical angle.

20. (Original) The apparatus according to claim 1 wherein the reflector is any one of a metal sheet, white polymer sheet, a white Polyethylene Terephthalate (PET) sheet, a polytetrafluoroethylene (PTFE) sheet, and a thin polymer film specular surface reflector sheet.

21. (Original) The apparatus according to claim 2 wherein the display structure is a picture frame.

22. (Currently amended) A method of providing planar lighting comprising the steps of:

holding a light source in a transparent thermally insulating dielectric sleeve; and

emitting light from said light source substantially uniformly through a planar surface of a planar waveguide by contacting at least one edge of the planar waveguide with an outer surface of said sleeve such that the planar waveguide receives light from the light source passed from an inner surface of the sleeve through the outer surface of the sleeve to the at least one edge of the planar waveguide.

23. (Original) The method according to claim 22 wherein the planar waveguide and sleeve together are a self-contained unit.

24. (Original) The method according to claim 23 further comprising the step of positioning said self-contained unit behind an image in a display structure to back light said image.

25. (Original) The method according to claim 24 wherein said display structure is a picture frame.

26. (Previously presented) The method according to claim 22 further comprising the step of providing a reflector that directs light from outside of the sleeve into the at least one edge of the planar waveguide.

27. (Original) The method according to claim 26 further comprising using an adhesive connector for coupling said reflector to the planar waveguide.

28. (Original) The method according to claim 26 further comprising using a friction connector for coupling said reflector to the planar waveguide.

29. (Original) The method according to claim 27 wherein the adhesive connector is any one of or a combination of metalized tape, vinyl tape and polyester tape.

30. (Original) The method according to claim 29 further comprising the step of segmenting the tape into two or more sections along the one edge of the planar waveguide to prevent electrical current flow.

31. (Original) The method according to claim 27 wherein the step of providing a reflector includes employing a thin polymer film, and the step of using an adhesive connector includes using adhesive tape; and

further comprises the step of using the thin polymer film and the adhesive tape to hold the sleeve in contact with the one edge of the planar waveguide for the delivery of light thereto.

32. (Original) The method according to claim 22 further comprising providing a back panel for the planar waveguide that reflects light toward the light emitting planar surface of said planar waveguide and limits pass-through light emissions.

33. (Original) The method according to claim 32 wherein the back panel is any one or a combination of a polystyrene sheet, a foamed Poly-Vinyl Chloride (PVC) sheet, and a Polyethylene Terephthalate (PET) sheet, and a thin polymer film specular surface reflector sheet.

34. (Original) The method according to claim 22 wherein the sleeve is a clear fluoropolymer tube.

35. (Original) The method according to claim 22 wherein the sleeve has an index of refraction equal to or less than the index of refraction of the planar waveguide such that increased amounts of light from the sleeve are received by the planar waveguide.

36. (Previously presented) The method according to claim 22 wherein the planar waveguide is any one of an acrylic plate and scattered acrylic plate.

37. (Original) The method according to claim 36 wherein the planar waveguide has a matrix of ink dots whose diameters, densities of ink, or both increase as a function of distance from the edge of the planar waveguide such that the matrix enables an even distribution of light to be emitted from the planar surface of the planar waveguide.

38. (Original) The method according to claim 36 wherein the planar waveguide uses varying amounts of internal discrete light scattering elements to disperse the received light to evenly emit light from the planar surface of the planar waveguide.

39. (Original) The method according to claim 22 wherein the step of holding includes the sleeve removably holding the light source.

40. (Original) The method according to claim 22 wherein the light source is a cold cathode fluorescent lamp.

41. (Original) The method according to claim 22 wherein the light source is derived from a chemiluminescent reaction.

42. (Original) The method according to claim 22 further comprising the step of forming the one edge of the planar waveguide with grooves that cause the angle of the received light to be about the critical angle.

43. (Original) The method according to claim 22 wherein the reflector is any one of a metal sheet, a white polymer sheet, a white Polyethylene Terephthalate (PET) sheet, a polytetrafluoroethylene (PTFE) sheet, and a thin polymer film specular surface reflector sheet.

44. (Currently amended) A planar waveguide system comprising:

a planar waveguide having a planar surface for emitting light, a back panel opposite the planar surface, and edge sides between the planar surface and the back panel;

a transparent dielectric thermal insulating sleeve for holding a light source, the transparent dielectric sleeve being positioned adjacent to an edge side of the planar waveguide such that light from the light source, through an outer surface along a side of the transparent dielectric sleeve, is incident into and received by the planar waveguide;

the sleeve effectively enabling contact between ~~at least one of (i) the light source and an inner surface of the transparent dielectric sleeve and (ii)~~ the outer surface of the transparent dielectric sleeve and the planar waveguide, and the planar waveguide responding to received light by emitting increased amounts of light with respect to a non-contact light source; and

means for holding the sleeve adjacent to the edge side of the planar waveguide.

45. (Original) The system according to claim 44 wherein the sleeve has an index of refraction similar to the index of refraction of the planar waveguide such that increased amounts of light are received by the planar waveguide.

46. (Original) The system according to claim 44 wherein the sleeve is a clear Fluoropolymer tube.

47. (Original) The system according to claim 44 wherein the light source is one of a cold cathode fluorescent lamp or a chemiluminescent light stick.

48. (Withdrawn) An image display apparatus comprising:

media embedded with an image;

a display structure for displaying the image; and

a self-contained luminaire being removably insertable into and acting as a backing board for the display structure.

49. (Withdrawn) The apparatus according to claim 48 wherein the self-contained luminaire includes a planar waveguide; and

further comprising a means for limiting the amount of light escaping from the back of the display structure to about 1% or less of the amount of light within the planar waveguide.

50. (Withdrawn) The apparatus according to claim 48 wherein the display structure includes a slot into which the self-contained luminaire is positioned behind the image.

51. (Withdrawn) The apparatus according to claim 50 wherein a transparent panel is positioned in front of the image.

52. (Withdrawn) An image illumination system, the system comprising:

media capable of being embedded with an image;

a self-contained luminaire acting as a back light for the media; and

a means for positioning said media in front of the self-contained luminaire.

53. (Withdrawn) The system according to claim 52 wherein an image is embedded on or within the media by any one of an inkjet printer, laserjet printer, photoprocessor, and photograph printer.

54. (Withdrawn) The system according to claim 52 wherein the luminaire includes a planar waveguide with a light emitting planar surface, the light emitting planar surface having a substantially horizontal orientation whereupon gravity is used to position the media in front of the luminaire.